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Opium Growers and Rice Growers:
Shall the Twain Meet?

150 Soi 20 Sukhumvit Road
Bangkok 11, Thailand
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Dear Mr. Nolte:

We have again returned to an area which continues to fascinate us: the northern region of Thailand. We also made a side trip to Laos, adjoining this part of Thailand, to compare things on the other side of the border. Why does it fascinate us? It is a remote area, little is known about it, yet there are powerful forces at play here which will affect large numbers of people elsewhere in the region and the world. Although we looked only at the North of Thailand and at Laos, some of the problems here exist throughout the whole tier of countries from northern and southern Vietnam through Laos and Cambodia to Thailand, Burma and even India. The solutions to these problems, if any can be found, will require some complex intermixture of human, technological and political ingredients.

I say "if any can be found" because in some respects the problems here resemble those between the American Indians and the settlers more than a century ago. Many thoughtful people are now working in Thailand, however, to prevent an outcome here of the type which was chosen in the U.S.: virtual extermination in many places, with the remnants of the tribal peoples still poorly integrated and dependent even into this seventh decade of the twentieth century.

If we were to seek a mold into which to cast the problems, we might symbolically use the title above: it summarizes all the things that divide the upland tribal peoples from the lowland culture: different systems of subsistence, different beliefs, and the almost intractable fact that while the upland peoples control the land, the lowland peoples control the political system that claims the right to rule the hills. The technological problem is thus how the upland peoples can produce their food, and even a cash income, in ways ecologically compatible with the capacity of the land to support both upland and lowland groups (the upland population density in many areas is now approaching the point where the old agricultural technology just won't work any more). The political problem is how two groups both so mistrustful and so ignorant of each other can be joined in some kind of body politic. The human problem is how people of such different cultural and economic backgrounds can reach a level of understanding where they can work together to meet all the issues dividing the hills from the valleys.

As we learned during our visit, this whole range of problems resolves into four specific issues: water control and deforestation; drugs; tribal revolt; and population pressure on the land. As might be expected, each problem has its own set of bureaucracies, Thai and foreign, each with its own perspective and its own preferred solution. To list some of those involved: water control -- Royal Forestry Department; drugs -- United Nations, U.S. Bureau of Narcotics and Dangerous Drugs, U.S. Department of Agriculture; tribal revolt -- Internal Security Operations Command, SEATO,

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American Embassy Development and Security Section; population pressure -- Ministry of Agriculture, Ministry of Interior, Public Welfare Department. The important question is, what solution can be found which addresses all these problems and satisfies at the same time enough of the bureaucracies involved to get governmental action?

Perhaps I should go back a bit into my own association with the area, to show how perceptions have changed here in the last few years. I first became interested in the northern hills while living in Bangkok during 1968-69, and I returned during the summer of 1970 to conduct some research on the North. At the time the papers were filled with reports of tribesmen attacking Thai officials, and there was a sense almost of panic in Bangkok about what might lie ahead. For the most part reaction was mindless, the Thai using the not very sophisticated tools that had been given to them. As a result napalm, mortars, artillery and other techniques of random violence were used on the people in the hills. It was very much perceived as a military problem, and decisions were largely in the hands of the military (as was the whole government at that time, of course).

Since then both the perception and the thrust of the bureaucratic response have changed markedly, though the bombing still continues at a lower rate. There appears to be a much greater appreciation among Thai officials of the economic origins of the struggle in the hills, though the political dimension seems not to be appreciated by them, at least as far as I can judge from my discussions and reading.

Estimates vary on the size of the tribal population in Thailand, with figures between 50,000 and 500,000. The tribesmen live in some 2,000 villages spread across more than a dozen provinces in the northern and northwestern parts of the country. Observers judge that about 1,000 of these villages are involved in opium production. Many different ethnolinguistic groups are represented, some recently arrived and some of long residence. One of the most important tribes, the Meo, are recorded in Chinese annals as far back as 4,000 B.C. The Meo were originally valley-dwelling rice growers, but their kingdom was destroyed by the Chinese in the eighth century A.D., and they fled to the hills where they took up the only form of agriculture that makes sense at high altitudes: slash and burn. Today the Meo and a number of other tribes grow opium to provide a cash income: like swidden culture of rice, it is the only sensible solution to the combined demands of marketing, price/weight ratio, and cultural requirements.

In former times there was no "hilltribe problem" (the tribesmen would call it a "lowlander problem"): the Chinese were the only opiumsmokers; traders had cozy arrangements with Thai officials, and there was little contact between tribal peoples and Thai. All this has changed now. The narcotics issue has come to U.S. attention, the cozy arrangements have folded under both foreign and domestic pressures, and population growth has brought both cultures into frequent and often violent conflict over the ever-diminishing area of untilled land. The tribal revolt which erupted in the late 60's, with some assistance from outside Thailand's borders, was only one manifestation of these much deeper problems.

The "solution" to all of these problems will have to consist of a number of elements, and for the simple reason that this is not easily done, the problems linger on in the North to make life difficult for many, many people, first among these the tribal peoples themselves. Presumably some method must be found to limit population growth, both from births and from immigration. A technology

which does not encourage large families lurks somewhere in the background here. If water runoff is to be limited, sedentary agriculture must be introduced so as to eliminate constant cutting of new forest areas. A much higher, and more comfortable, population density would then also be possible. But this implies again a new technology as well as the use of fertilizer, since the whole point of cutting the forest is to release the nutrients stored up in the ground cover. The adoption of a new technology also implies some security of land tenure, and this in turn implies an entirely new political relationship between the hilltribes and the lowland Thai who, legally anyway, view the former as temporary residents without any claim to the land. Finally, whatever technology is proposed must be more profitable than slash and burn rice and opium culture: suppression is impossible in the rugged upland forests, physically as well as politically; so the new technology, whenever it is found, must sell itself.

Some approaches, it is now known, will not work, or will work only with enormous capital investments beyond the ability of the Thai to bring forth. One such approach is resettlement of the hill people into the valleys, an effort inspired at least in part by the same idea as the Vietnamese strategic hamlets, of cutting contact between rebels and peaceful citizens. But the investment in roads, landclearing and physical plant is too high, and the tribal people do not like to move in anyway, the result of forced resettlement often being increased hostility and more armed opposition to the Bangkok authorities. For some reason also, the pilot resettlement projects have been plagued by corruption and mismanagement by the Thai officials in charge. Military campaigns have equally failed, sometimes catastrophically, and the result has, again, been increased hostility. What has finally been realized in most quarters is that there remains only the alternative of finding a new technology to permit the hill peoples to remain in the hills, grow something beside opium, and gain a sufficient income so that (the proponents hope) they will no longer support armed rebellion. In this latter regard they may be naive, however, as there are tough political issues at stake as well, issues which have been resolved, sad to say, only by violence in such countries as Burma and southern Vietnam.

The first stop on our trip was with an old friend, Gary Oughton, an Australian with a number of years of experience in the North and now associated with the Tribal Research Center, a research and consulting arm of the Public Welfare Department located on the campus of Chiangmai University. Gary started by refreshing our memories on the history of governmental interest in the hill tribes. He recalled that in the mid-60's the U.S. Department of Defense acquired a concern for the subject and, discovering that there was only one Thai with any expertise in the area, they called in a number of foreign anthropologists. After a couple of years of study the anthropologists learned that there is nothing ethnic or cultural about swidden agriculture, frequent shifts across upland political borders, and the raising of opium. The "problem" was simply one of being hill farmers. Knowing this, officials have now called on the services of agronomists and agricultural economists.

Gary's current project, which starts from this insight, is the "Mae Sa Integrated Watershed and Land Use Project," run by the Royal Forestry Department in cooperation with UNDP/FAO. The funding for the project is "watershed" money, not "drug" money, and this has important consequences both for bureaucratic outlook and for the shape of the program.

The guiding perception of this project is that there are three problems in the hills: first, the technology of shifting agriculture can't support the population, a problem for both Thai and hilltribes (the point is, once the Thai move up into the hills, they usually use the same technology); second, the watershed is being damaged by shifting cultivation, which will bring on increasingly serious flooding problems in the valleys as the years pass; third, the deforestation is proceeding at such a rate that many species will be unavailable in commercial quantities in 20 or 30 years.

The "solution" which this project proposes is to take a watershed from ridgetop to ridgetop as one socioecological unit, surveying all its resources. The best land is then allocated to intensive agriculture, i.e. terraced paddy cultivation and orchards. The rest becomes commercial forests, with the settlers having the responsibility for fire prevention and keeping outsiders from destroying the newly planted forests to go back to opium culture. The advantage of this approach, in Gary's view, is that it does not simply replace opium with some other crop equally damaging to the forest. Its shortcoming, of course, is that it requires an enormous capital investment if it is to be expanded to any kind of scale, for terracing the land, for credit to buy fertilizer, for orchard and other trees, for tools and animal power. It is not done now because all the pieces -- technology, capital and markets -- have to fall into place at once, and none really exists. For this reason swidden agriculture is well adapted: most all the returns are to human labor, which exists in abundance in the hills; it requires few or no animals and no fertilizer; and marketing is hardly a problem: merchants beat down the doors of the opium growers. Gary emphasizes therefore the integrated nature of any potentially successful program: it will not be economically viable to construct roads to bring out agricultural crops alone. The project will pay only if there is the added incentive in the form of forest products.

There is one further difficulty which worries the Thai associated with the project. If successful it would make the North so attractive that even more tribesmen would move in, possibly just to cut down the new forests to grow opium. To minimize this danger means giving the settled tribesmen enough of a stake in their areas, as noted above, to keep out potential newcomers, or to incorporate them into the new cultural methods. Yet that necessitates a new political and legal relationship between the hilltribes and the Thai, raising a host of problems no one wants to think about, especially with the troubles the Thai are currently having setting up a new constitutional order among themselves.

This suggests that since there are hilltribes settled in the mountains all across from Vietnam to Burma, the problem is a regional one and should be handled on that basis. Gary wants to think that his effort could serve as a model at least for the neighboring countries of Laos and Burma, but he is the first to admit that with conditions unsettled as they are in these countries, imitation is unlikely for the foreseeable future.

Our next stop was with Bill Manis of the USDA Agricultural Research Service, which shares an office with the UN Crop Substitution Project in a modern, but Thai-style, office on the outskirts of the city of Chiengmai. The UN project is headed by Prince Bhisadej, a confidant of the king, who as I have mentioned earlier has had a long and serious interest in the problems of the hills and the hill people. I unfortunately missed both the prince, off in Taiwan while I visited, and the program manager Dick Mann, who before joining the UN effort had spent 13 years in missionary and community development work among the Karens, another large tribal group in the North.

The UN project is funded by "drug" money and goes back several years to the UN-sponsored surveys of the northern hills conducted in 1967, 1970 and 1971.

The USDA got into the act here with an appropriation from Congress in 1972 to finance research into substitute crops for opium. The need for this grew out of a realization that while the UN project was intended as an extension effort, it really had very little to extend in the way of alternate technologies.

Half-humorously, but in order to cover all the demands on a program for the North, I asked Bill, "Is there now a practical and proven agricultural technology to support the existing hill population, which is: non-degrading to the forest, capable of producing an income equal to that received now, with markets and a marketing system, compatible with the capital available, and capable of expansion to accommodate immigration and population growth?" Bill's answer was an emphatic "No, but!" There are, he believes, exciting possibilities.

To get an idea of what the crop substitution program is up against, though, I must tell you a bit about how to grow opium, why it is a good crop, and what is wrong with it for the growers. We can start with the assumption of one family, an average of 5-1/2 people, who with their own labor can cultivate about 2-1/2 acres of poppy fields. The preparation of the fields begins with the burning of the forest cover during the dry season and then waiting until late in the year to prepare the soil, a very labor intensive job. The poppies have to be planted before the end of the rice harvesting season, which is one major disadvantage of poppy culture; it would be better to find a crop which could be strictly alternated with upland rice. The poppy seeds will be planted in September or October and then thinned several times to leave only healthy plants at the proper interval. Weeding is also a laborious chore, but it must be done regularly if the crop is to be a good one. During the growth of the plants a number of diseases may hit, and if the fog or dew is too light, the crop will not be satisfactory, as will be the case if freezing temperatures strike.

After about four months the poppy seed cases will mature, as indicated by the fall of the petals. At this point harvesting begins, and goes on for about two weeks. Harvesting consists of pricking the seed case with a special knife and then collecting, early each morning, the sap which oozes during the night from the seedcase. Actually several crops will be planted at intervals to spread the labor over a longer period and to minimize the risk of one entire crop being wiped out by unfavorable conditions. If all goes well, the 2-1/2 acres will give a yield of about 6 kilograms (one kilogram equals 2.2 pounds), although good crops may even be double this. The price this year for raw opium is about \$100 per kilogram, twice that of a few years ago. This gives a return, in four months, and with no cash input, of \$225 per acre, or \$500 per family per year from opium alone. This is a fantastic financial yield and, sad to say for the crop substituters, a hard act to follow. (This figures out to 2,000 baht per mai in the units most commonly used in Thailand.) Aside from the high return per unit area, higher than any other presently conceivable crop, opium also has high value per unit weight, which means that it can practically be transported on horseback, or even backpack, out of remote areas inaccessible by road.

From the point of view of the growers, however, the opium poppy is not an ideal crop for several reasons. First, poppy culture conflicts with upland rice cultivation. Second, the labor requirements are excessive. Third, there is some unreliability due to the climatic factors mentioned. Fourth, the tribal peoples themselves suffer to some extent from addiction, and interviews reveal that they would be just as happy to give up the opium business if someone could come up with some-

thing better. Hence there is a lot of receptivity to a shift, and that is what encourages so many people to believe a better future lies ahead for the hill peoples, if the technical, financial and political problems can be worked out.

The USDA, under Bill Manis's direction, has committed almost half a million dollars to contracts with a number of Thai universities to conduct experiments on possible alternate crops for the North. Here are the things they are looking at:

1. Fruit trees. There is a tremendous demand for such fresh fruits as peaches, apples and plums, all of which would be naturals for the North to grow if the proper varieties can be found and if the fruits can be moved out of the hills. Apples now fetch 50¢ apiece in Bangkok; large-fruited peaches are simply unknown. If it develops that the fruits cannot be moved out fresh, they might be canned or processed into jams right in the hills. The king has sponsored one such experimental canning factory in Farn, north of Chiengmai; we got some peach jam from it which was absolutely delicious. Peaches can be grown in the North; some native small-fruited varieties have actually made their way down from China, and the tribal peoples are thus familiar with the tree (though not with modern orchard management methods). A possible "quick fix" which Bill is considering is to import scions of large-fruited varieties and to graft them onto the already mature native stock. This will be practical, of course, only if the backup facilities of marketing and technical advice on fertilization, insect and disease control, and pruning become available. Apples are a more complicated problem, because they are not presently grown at all, and like peaches they demand a cold dormant period. Varieties differ in their requirements, though, and some type can certainly succeed here. Bill has arranged for the import of a number of varieties to be tested.

If fruit trees can be made to work in the North, it would of course solve the problem of deforestation and runoff. Unfortunately capital requirements are high, and the payoff period is long. Furthermore, as far as quick answers to the multiple problems of the North go, orcharding is not too helpful. Except for the peaches, it will be years before it is even known what long-payoff technology will work here.

2. Strawberries. This is another popular item in Thailand, for which there is a tremendous demand, if the berries can be produced before or after the main season in the valleys of the North. (At this time the price drops catastrophically.) There is a good chance this can be done, since the climatic conditions differ between the hills and the valleys. As with apples, peaches and plums, the strawberries could be canned in the hills to reduce losses in transit, increase local employment, and enhance value per unit weight. At this point, however, no one knows what the good varieties are for the higher elevations; this is another series of experiments.

3. Mushrooms. As far as I know the European button mushrooms cannot be grown in Thailand, the local substitute being a special type called a "straw mushroom" which, though difficult to grow, is freely available in the local markets at about one dollar per kilogram. There is a special type of mushroom, however, which as luck would have it can be grown only at higher elevations and with two or three special kinds of wood available in Thailand's upland forests. This is the shiitake (pronounced she-tah-key) mushroom, a Chinese delicacy which sells for between \$20 and \$45 per kilogram.

The production of the shiitake mushroom can best be carried out as a family or local cooperative enterprise, since it requires intensive supervision for watering and harvesting. The growing process involves locating the proper type of tree, then cutting and preparing it into logs several feet long. The special fungus spores, known technically as spawn, are then introduced into holes drilled into

the logs, and the holes are sealed. After two or three months the mushrooms begin to grow on the surface of the logs, and with proper care each log will go on producing for several years.

Shiitake mushrooms are now produced in both Japan and Taiwan, in the latter country curiously by ethnic minorities in the forest, in circumstances quite similar to those existing in Thailand's hills. Tests are now going on under the USDA program to determine whether similar results can be obtained here. A number of logs have been inoculated, and everyone is just waiting to see if the mushrooms sprout. If they do, then some system will have to be set up to produce and distribute the spawn, perhaps the most crucial phase of the operation, as it requires sterile premises to prevent the introduction of enemy fungi.

4. Coffee. It may be possible to grow in the hills a special upland kind of coffee called Arabica, a different species from the lowland coffee, Robusta. It has a better flavor (I've tasted it, and it is better, I can assure you), and it fetches a better price, about one dollar per kilogram in the Chiangmai market. The problem with coffee everywhere is a fungus, called coffee rust, which attacks the plants and reduces yields to an uneconomic level. If the rust problem can be overcome, coffee would be a desirable crop, because the beans are not perishable, and the plants are permanent, a fact which would help to stabilize the population. Coffee culture is also labor intensive, another desirable feature for any potential crop for the hills, and the coffee produced would help to save Thailand the foreign exchange for imports. The very day I was there some possibly rust-resistant plants were going into the ground, so we should know in three to five years (the length of time it takes to produce the beans) whether coffee can be part of the answer for the hills.

5. Legumes. Just about everyone knows there is a soybean shortage in the world, as soybeans are a basic ingredient for animal feeds as well as meat substitutes for direct human consumption. One possible technology for the North is to grow soybeans, or other crops belonging to the same family of legumes. The advantage of legumes is that they are unique in the plant world in being able to produce their own fertilizer, in association with a special kind of bacteria called rhizobia. The rhizobia take nitrogen from the air and put it into the soil in a form the plants can use, soils having completed a crop of legumes actually being richer in nitrogen than before planting! A crop is quick too, from 90 to 120 days, so legumes are ideal in rotation with some other crop, for which they enhance the soil. The difficulty is the low price per unit weight, about 20¢ per kilo for soybeans and 50¢ per kilo for kidney beans, another legume for which there is some demand. One potential solution to this problem is to grow soybeans, feed them to cattle, and then drive the cattle down out of the hills to market just as the ~~Tex~~ cowboys used to do in olden times. Unfortunately this would require a high capital investment, and the hilltribes are not familiar with the technology of cattle raising. (Soybeans are easy -- they've been grown successfully in the hills already.)

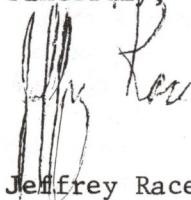
6. Nuts. Like fruit trees, nuts would enhance the forest cover and help stabilize the population. Like fruit trees, also, they require a high capital investment and have a long payoff period. At this point experimentation is just starting on the best varieties and potential yields.

One of the problems in this effort is that there is no central experiment station: every time someone wants to try something, he must find his own place. Under these conditions it will be four or five years before there are any good answers. Some crops have a good price, like the mushrooms, comparable to opium (\$20 - \$45 per kilogram versus \$100), but the technology is not tested. Others, for which

the technology is tested, have a low price, like the beans. There is a third category, like the fruits, where there must probably be an ancillary technological input such as canning factories. So no quick answers lie ahead, though if even half these ideas work out, the future is very bright. This comes as little consolation now to the desperate people in the hills, and to the bureaucrats who rather urgently need some answers for the people who are paying their bills.

All the foregoing is really just half the problem, and perhaps the less important half: there is also the political dimension to the troubles in the hills, and if this cannot be resolved, all the clever technological answers will come to nothing. Thus in my next letter I want to talk about the politics of the hills and about our Laotian trip. The latter was a most rewarding venture, as the differing demographic and legal context on the other side of the border gives a perspective (and an insight into alternatives) which one wouldn't get from staying within Thailand alone.

Sincerely,



Jeffrey Race

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